

QUESTIONS FROM WINDOW AREA

Aug 59

**Physical Aspects:**

1. What is maximum dimensions that window could have?
2. Does window have to conform to vehicle contours and, if so, to what tolerances and under what conditions.
3. What is shape (contour) of vehicle in window area?
4. If conditions specified in 2 and 3 above do not allow a flat window, could either 2 or 3 be changed to allow a flat window? What is maximum size of flat window possible?
5. What are permissible dimensions for window recess or protrusion from vehicle contour as a function of temperature. Can one edge recess? Which edge?  
*de Mayere* *with tank edge*
6. What is maximum allowable gap between vehicle and window as a function of temperature?  
*SS*
7. What is the pressure profile window will be subjected to? What is maximum pressure? What safety factor over maximum pressure (atmospheric and dynamic) should be used in designing window thickness?  
*multiplier*
8. Any other structural considerations? Mounting methods to vehicle? Strut or rib locations?  
Accessibility to edge of window call for blowing?

9. What is the basis of window heating? Is it the temperature which is constant or is it the heat transfer which is constant.
10. What is temperature profile across and along window location?
11. What is temperature of vehicle skin and mounting points adjacent to window?
12. What is method of cooling vehicle walls?
13. What vehicle cooling methods are available for use in cooling windows, such as cool air? What temperature, pressure, and velocity?
14. What is temperature of inside walls of equipment bay?

**Aerodynamic Aspects:**

15. What is the nature of boundary layer?  
(Thickness) (turbulent or laminar)  
*1.5 +*
16. Are spoilers, to deflect boundary layer, out of the question?  
Is aerodynamic window out of the question?
17. Are cold air jets to cool outside window surface and/or  
deflect boundary layer out of the question?
18. What size and kind of <sup>holes</sup> holes, etc. are permissible in  
vehicle skin? Location? Effect on boundary layer? (Holes  
for protective covers, pressure escape valves, vacuum, etc.)  
*will check 4 holes*

**General Aspects**

19. In a wind tunnel, can the wind tunnel window surface be brought to temperature in question?
20. Can simulated outside surface window conditions be accomplished in a wind tunnel?
21. Is there a nose wheel ahead of window? How far ahead and how far below window is bottom of wheel? Is retractable window cover impracticable?  
Can wheel well cover serve to protect window when nose wheel is down?
22. Is there any known plastic material which can be used at these temperatures to fill window to skin gaps?

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